Geography

Earthquakes

Earth Crust → 1 µM

Visible Plates ≈ µ

Continents

Hidden Plates

Under the sea (the areas where the plates join)

Movements in the earth's crust

Less Serious

Earth Tremors ≈ µ

Very Serious

Earthquake

Definition

(Movement of the earth's crust) that occurs when plates shift & release stored energy

Where the earthquake begins

The focus of an earthquake

The area on the fault where the rocks fail

break

& move

Rock

Soil

Move

&

Break

The epicenter

Changes can earthquakes cause

The point on the earth's surface is the earthquake's shaking the strongest

Tectonic Plates

Is a scientific theory which describes the large scale motions of Earth's lithosphere

The theory builds on the older concepts of continental drift

The tectonic plates are composed of two types of lithosphere

thicker continental

thin oceanic. The upper part is called the crust. again of two types (continental and oceanic)

Elastic Limits

Elastic limit

Limit of how much stress a material can absorb

Seismic Waves: Body Waves & Surface Waves

The vibrations produced by an earthquake

Seismic waves OR tremors

Primary

Secondary

Surface

The 3 types of seismic waves

The type of [seismic wave] causes the most damage

Surface waves

Seismograph

An instrument used ↑

detect

record

Primary & Secondary waves

(The Primary wave) act on the earth

Concerns

Pacific Ocean "Ring of Fire"

Mid-Atlantic Ridge

Mediterranean-Asiatic Belt

The 3 main Earthquake zones

(The location of the epicenter) of an earthquake

On

the earth's surface

directly above the focus @ a point where

3 circles intersect

The strength of an earthquake usually given (terms of

Numbers on the Richter Scale ↑ ?

the location of Earthquakes

The difference between the

Richter Scale

based on

energy

released by

an earthquake

Mercalli Scale

based on

personal observation

of the intensity of

the quake

Damage Caused by Earthquakes on Land

Landslides

Creep

Fractures

Scarps

Changes (the landscape can an earthquake cause

Landslides

Scarps

Fissures

Temporary or permanent changes.

Factors Influencing the Amount of Damage

Distance from teh Epicenter

Soil Type

The # factors that influence how much (damage an earthquake causes)

Closeness ↔ epicenter

Type of ground

Building design & material

Closeness ↔ shore

Population density

Tsunamis: Results of Earthquakes @ Sea

Tsunami

A giant ocean wave

caused by

an earthquake

@ sea

Rocks (the earth's crust)Store a great deal of

Potential energy

Earthquakes occur @ depths of ≈ 700 km &↑

Rock is brittle

Earth

(Earthquake prediction)

Observing changes in

Animal behavior

Volcanoes

Describing Volcanoes

volcanic

An opening

in the earth's crust

that releases

molten rock

also the mountain that has built up from volcanic eruptions

Dormant volcano

A volcano that has not erupted ≥ 60 years

molten rock within the earth

Magma

The Structure of an Active Volcano

Magma Chambers

pressure

& heat

energy

will force

magma

upwards

The different parts of a volcano?

Magma chamber

Pipe

Vent

Crater

magma is by upward through ↑ earth's crust

a large pocket of underground magma

Pipes

Vents

Craters

Cones

a hollowed-out area at the top of a volcano

A crater

Features of Volcanic Eruptions and Explosions

Lava Flows

Volcanic Ash

Volcanic Bombs

magma that reaches the earth's surface

Lava

The 3 emissions from a volcano

Lava

Rock particles (ash)

Gas

Stream

The type of volcano that forms from alternating layers of

lava &

volcanic debris

Composite

Types of Volcanic

Cinder cone

Shield

Composite

The 3 main types of volcanoes

Cinder Cone

Shield

Composite

The volcano that forms from layers of slow moving lava

Shield volcano e.g.

Mauna Loa

Hawaii

How to Volcanoes are Formed

Volcanic Islands

Sumau, Iceland an e.g. of

Volcanic island built by a series of eruptions

Warning Signs that a Volcano is Going to Erupt

Most scientists ↔ monitor volcanic activity

Advanced photography

satellite imaging

infra-red photography

The factors determine whether an eruption will be explosive or quiet

Chemistry

Temperature

Pressure of magma inside

(The relative size of the particles)of volcanic debris

From bombs (ø ↑ mm diameter) ↔ ash (solids 1/10↓ mm) most particles)

The volcano that has steeply sloping upper slopes, but whose base slope gently

Cinder cone volcano

The major zone of volcanic activity?

Ring of Fire encircling

the Pacific Ocean

Volcanic activity can produce earthquakes

As magma moves upwards it may fracture rocks OR buckle overlying crust

Cracks caused by plates moving apart along ocean ridges

Rifts

Types of Rocks and the Rock Cycle

Types of Rock

Igneous Rock

Sedimentary Rock

Metamorphic Rock

The Rock Cycle

The Transition to Igneous Rock

The Transition to Metamorphic Rock

The Transition to Sedimentary Rock

The Texture of Rocks

Igneous Rocks

The Formation and Characteristics of Intrusive Rocks

The Formation and Characteristics of Extrusive Rocks

Pumice Formation

Porphyritic Rock: Both Intrusive and Extrusive

Identifying Igneous Rocks

Texture

Composition

Sedimentary Rocks

Process of Formation

Sedimentary Rock Features

Clastic Rock

Organic Rock

Chemical Rock

Classification of Sedimentary Rocks

Metamorphic Rocks

Contact Metamorphism

Regional Metamorphism

Foliated and Non-Foliated Rocks

Foliated Rocks

Non-Foliated Rocks

Igneous rock texture depend on

How fast the magma cools

Quarrying

Blasting

Drilling

→ get stone from the ground

The texture an igneous rock have if it has no universal grains

Size

Shape

Mineral arrangement

of grains of rock

The different rock textures

Coarse grain

Fine grain

Glassy

Igneous rocks identified by

Colors

Basalt

Texture

Mineral composition

Huge bodies of intrusive rock

Batholiths

Extrusive rocks also known as

Volcanic rocks

The difference between

Extrusive rocks

Intrusive rocks

have a fine glassy grain

More granular

Extrusive rock

Lava solidified on the surface

An important role (the formation of igneous rocks

Heat

To identify igneous rocks

Texture

Color

Mineral composition

Igneous rocks lack different &↑

They have a fine texture &↑ they cooled quickly with little time for grains ≥ 1 Size

Igneous rock is extrusive OR extrusive ↑

Extrusive: Lava solidifies on the surface & has a glassy texture. Intrusive: Lava solidifies beneath the surface & cools slowly

Igneous?

From fire' (ignite) - rocks made from

cooling

&

solidifying

of molten magma

The rock cycle

A series of processes where rocks continuously change from ↑ type ↑ another

The 3 main types of rocks

Igneous

Metamorphic

Sedimentary

The names of rocks without mineral grains?

Igneous rocks like obsidian which has (a smooth glassy texture)

Solidified magma form

Igneous rocks

Rocks change from ↑type ↑↑ another

When exposed ↑↑

Heat

Pressure

Melting

Cooling

Sedimentation

Weathering

Mechanical Weathering

Causes of Mechanical Weathering

Temperature Change

Animal Weathering

Water Abrasion

Plant Weathering

Ice Wedging

Chemical Weathering

Types of Chemical Weathering

Acid Rain

Oxidation

Hydration

Carbonation

Leaching

Plant and Fungal Acids

Lost Inscriptions

Foliated rocks have

Striped appearance caused by bands of different minerals in

metamorphic rock

The composition of mud

Sand grains

Water

Clay

Silt

On the diagram of composition & orientation shown

Sand particles cemented ↑↑ sedimentary rock.

The permanent ripple marks formed by

Wind

Water

constantly move over

sediment

The hardening of sediment ↑↑ rock

Lithification

The order of the sediment deposited by rivers

Pebbles

Gravel Particles

Sand

Clay

Silt

The forces that break down country rock

Abrasion

Wave Action

Organisms

Pollution

Ice

Wind

Sun

Rain

The name of the minerals coming ↑ of the solution & crystallizing

Halite

Chemical rock e.g.

Gypsum

Types of sedimentary rock

Clastic

Chemical

Organic

sedimentary

Type of rock is coal

Organic sedimentary rock

The name of the rock made from living organisms

Organic rock

The process of minerals filling spaces between sediment

Cementation

Fossil

Remains of a living organism embedded in rock

How country rock change ↑↑

Sedimentary

Chalk ad e.g. of

Organic rock (limestone)

Soil

Soil Development

Weathered Parent Rock

Immature Soil

Mature Soil

Soil Properties

Particle Shape

Particle Size

Acidity

Fertility

Soil Profiles

A Horizon: Topsoil

B Horizon: Subsoil

C Horizon

Soil Organisms

Nutrient and Energy Cycle

World Soil Types

Prairie Soils

Forest Soils

Grassland Soils

Tundra Soils

Desert Soils

Mountain Soils

Tropical Soils

Water and Landforms

Erosion

Agents of Erosion

Gravity

Water

Waves

Wind

Ice

Streams and Erosion

Types of Rivers

Young Rivers

Mature Rivers

Old Rivers

Deposition

Landforms and Deposition

Alluvial Fans

Deltas

Levees

Floodplains

Landforms and Flooding

XMind | Trial Mode